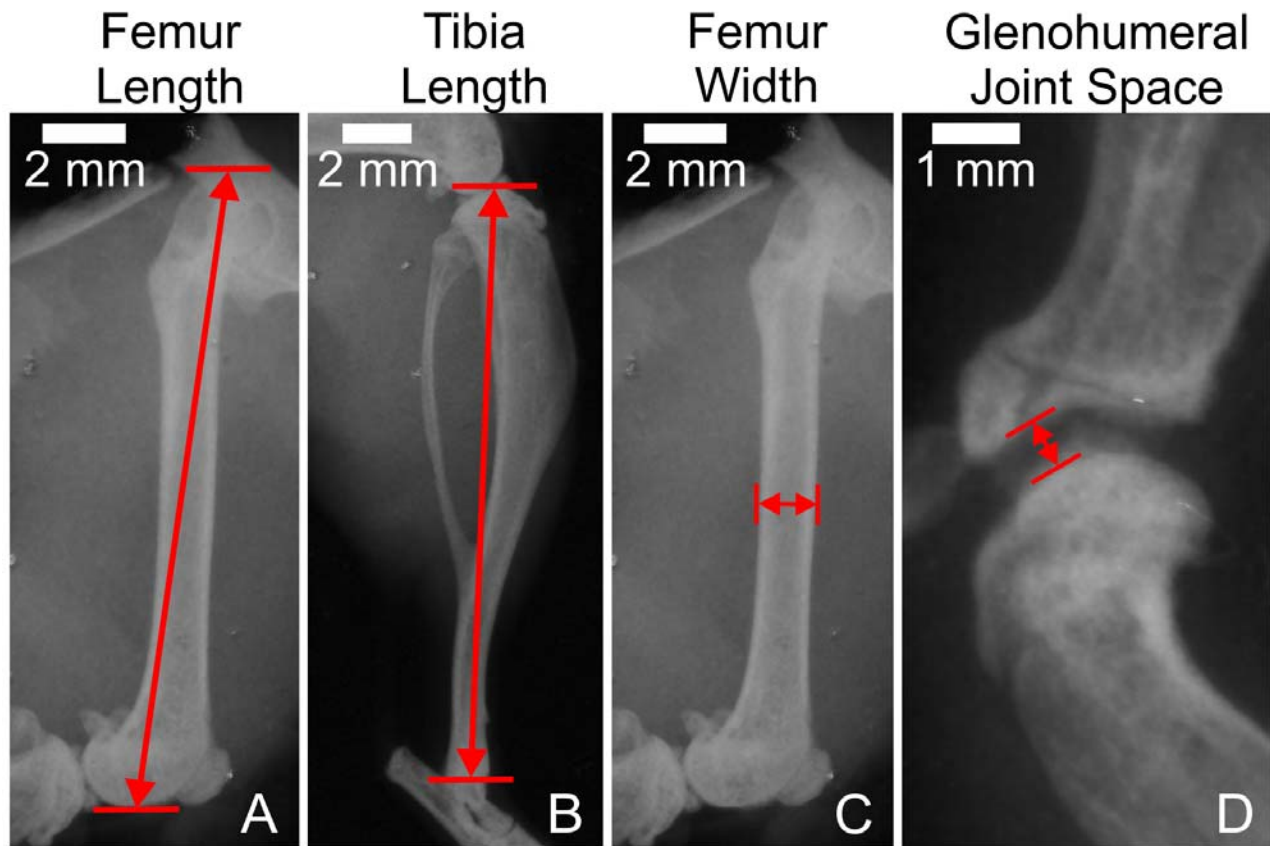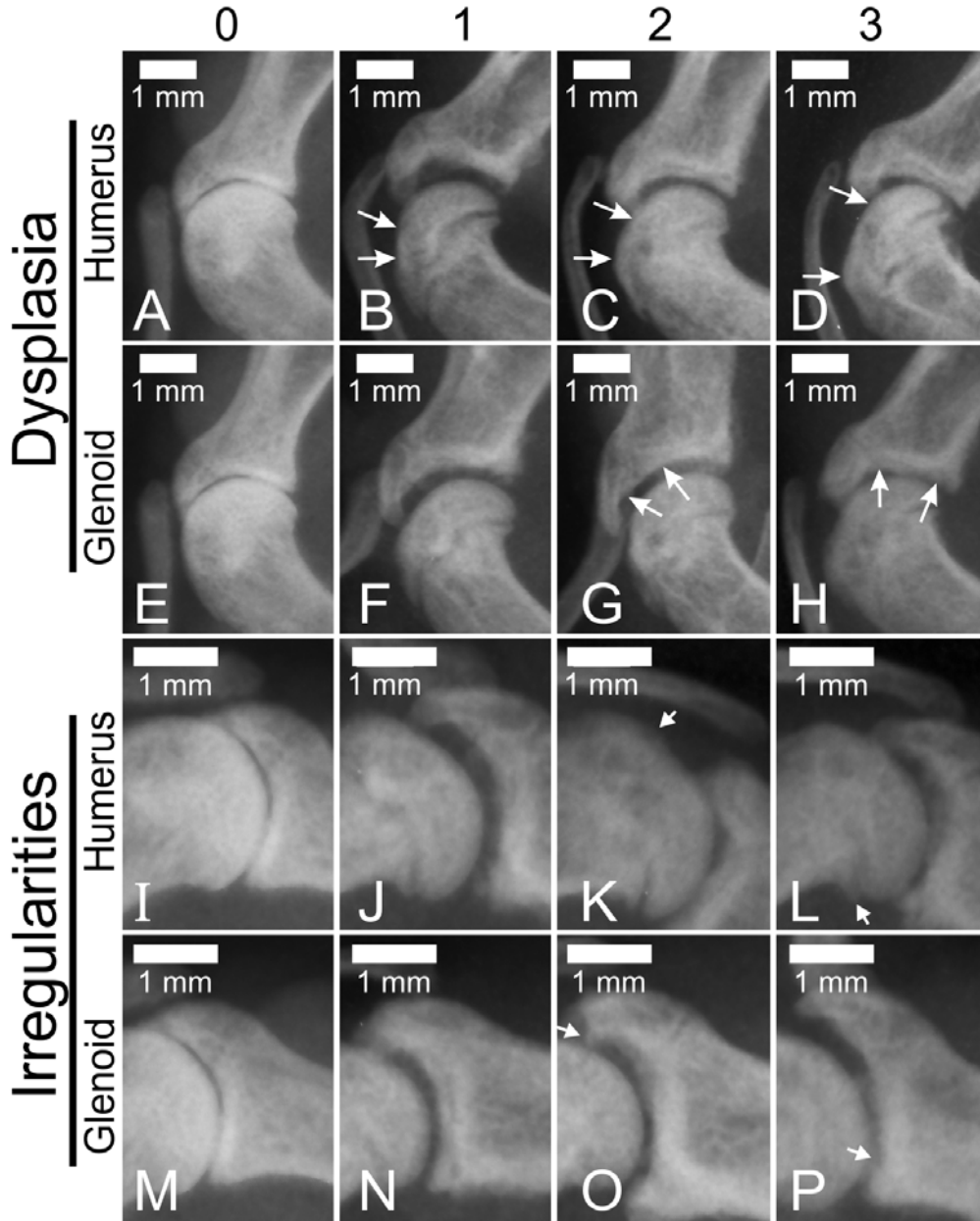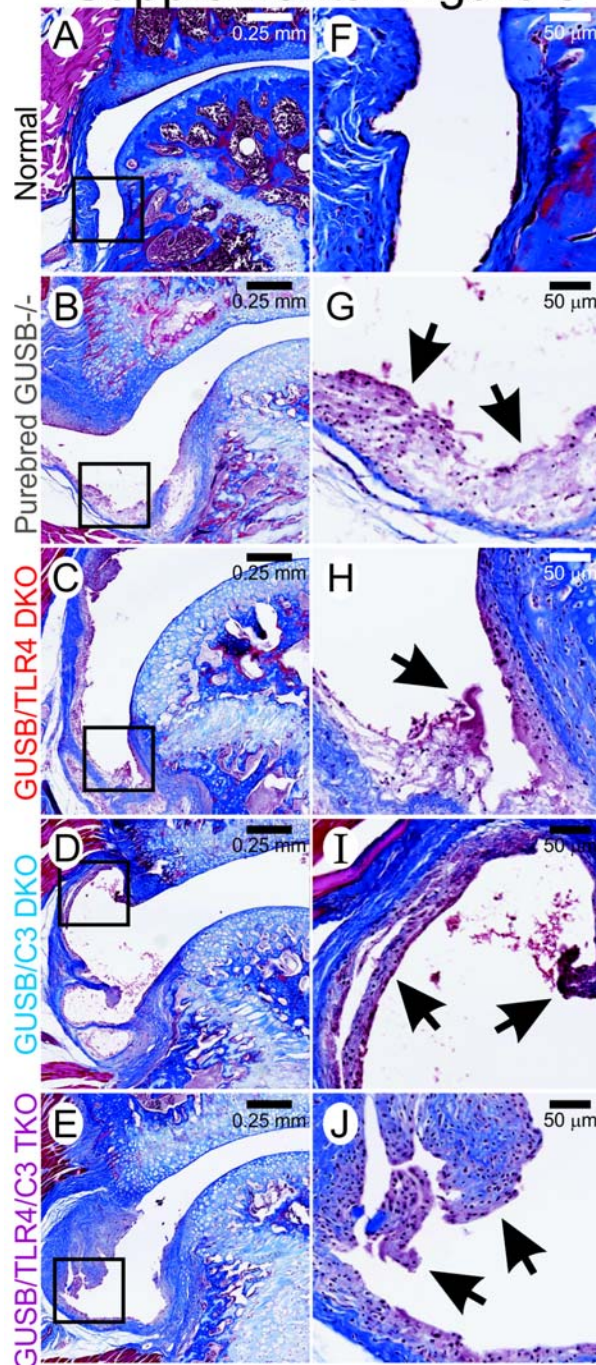# Supplemental Figure 1

Supplemental Fig 1. Method of measurements. Examples of measurements of the femur, tibia, and joint space. The red lines indicate the region measured, while the perpendicular lines show the edge of the measured region. Panels A-C display the leg of a normal mouse, while panel D is the arm of a purebred *Gusb*^{-/-} mouse **A.** Femur length was taken by measuring from the outermost edge of the proximal femur to the outermost curve of the distal femur. **B.** Tibia lengths were obtained by measuring from the proximal end to the outermost edge of the distal end where the tibia meets the tarsals. **C.** Femur widths were obtained by measuring across the approximate middle of each femur. **D.** Joint space was measured between the glenoid cavity and the humerus at a point one third of the length of the glenoid cavity from the lateral edge.

Supplemental Fig 2. Scoring of the glenohumeral joint. Examples of male mice at 3 months of age are shown for each score from +0 (normal) to +3 (severely abnormal) for dysplasia and irregularities of the humerus and the glenoid cavity. For panels B-D and G-H, the long white arrows indicate the edges of a region that is considered to be flattened, a measure of dysplasia. For panels K-L and O-P, the short white arrows indicate regions of articular bone that were irregular at the surface. The region identified in panel O is likely an osteophyte.

Supplemental Fig 3. Synovial hyperplasia in the subcondylar neck region. Examples of synovium tissue in the condylar neck region of the glenohumeral joint in male mice at 3 months. Genotypes are indicated to the left. **A-E**. These images were obtained at low power magnification, and the boxes indicate the region that is magnified in the panels on the right. **F-J**. These images were obtained at high power magnification, and the black arrows indicate synovial hyperplasia in the *Gusb*⁻/⁻ mice.